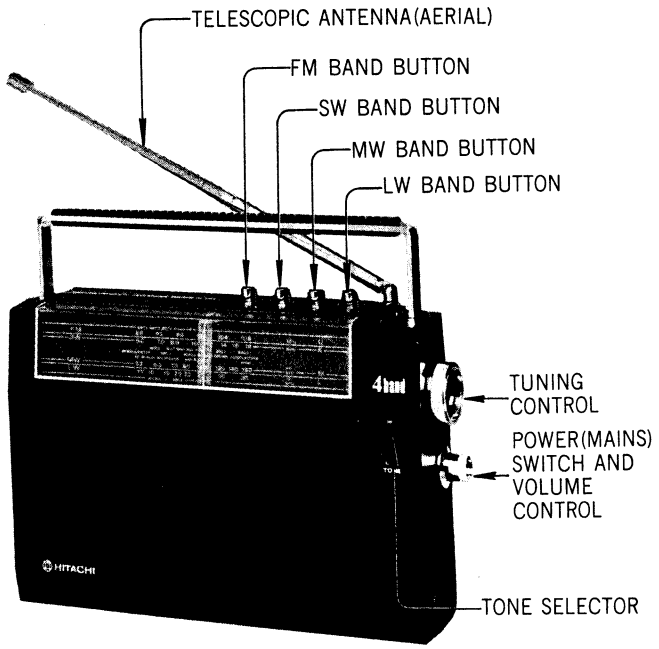
HITACHI

KH-1040ER

SERVICE MANUAL

No. 966



SPECIFICATIONS

Semi-conductors	2 IC's, 4 transistors, 11 diodes
Power Supply	AC : 220 ~ 240 V, 50 Hz
	DC : 6 V (IEC R20 × 4)
Power Consumption	7 W
Speaker	10 cm P.M. 8 ohm
Power Output	1.5 W (T.H.D 10 %)
Dimensions	16.3(H) × 24.2(W) × 6.6(D) cm
Weight	1.8 kg (with batteries)
Circuit System	FM/SW/MW/LW 4 band Superheterodyne
Tuning Range	FM : 87.5 — 108 MHz
	SW : 6 — 18 MHz
	MW : 530 — 1605 kHz
	LW : 150 — 350 kHz
Intermediate Frequency	FM : 10.7 MHz
	SW/MW/LW : 465 kHz
Sensitivity	FM : 12 dB
	SW : 20 dB
	MW : 48 dB
	LW : 55 dB
Antenna	FM/SW : Telescopic antenna
	MW/LW : Ferrite core antenna

PORTABLE RADIO

May 1977

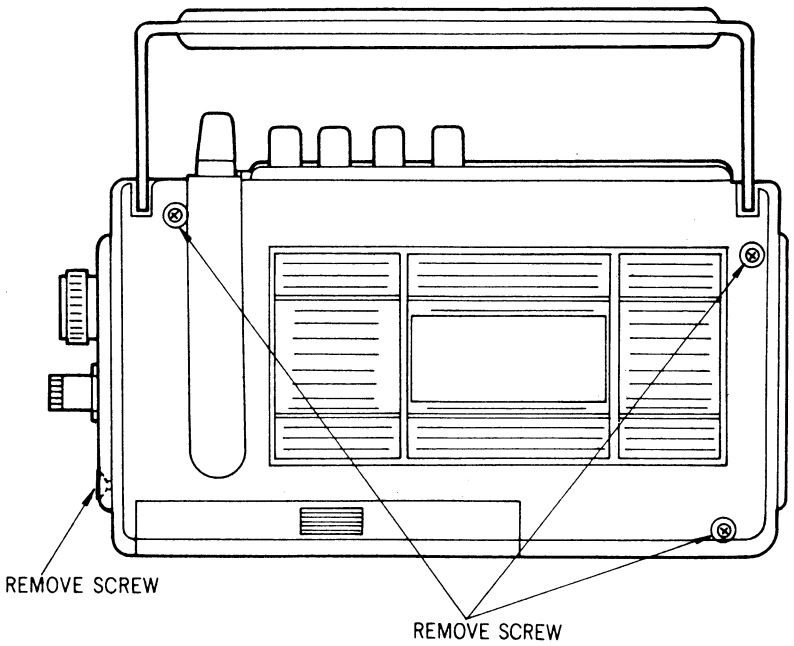
SAFETY PRECAUTION

The following precautions should be observed when servicing.

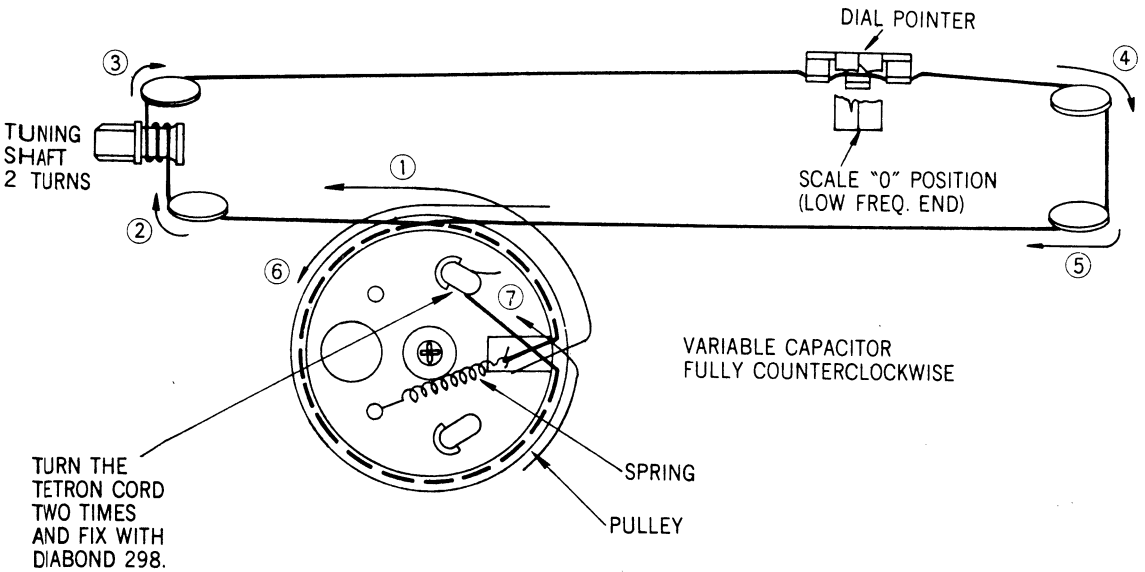
1. Since many parts in the unit have special safetyrelated characteristics, always use genuine Hitachi's replacement parts. Especially critical parts in the power circuit block should not be replaced with other makes. Critical parts are marked with ★ in the schematic diagram, and circuit board diagram.
2. Before returning a repaired unit to the customer, the service technician must thoroughly test the unit to ascertain that it is completely safe to operate without danger of electrical shock.

DISASSEMBLY

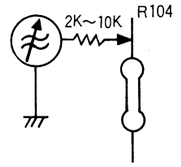
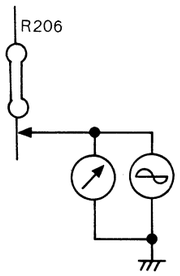
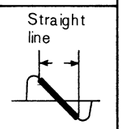
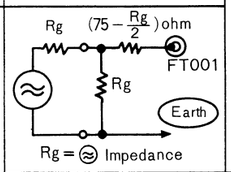
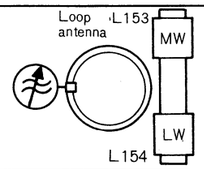
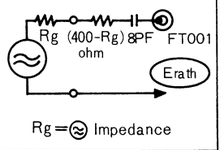
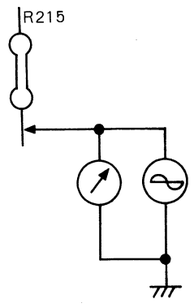
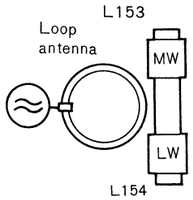
Removal of front case

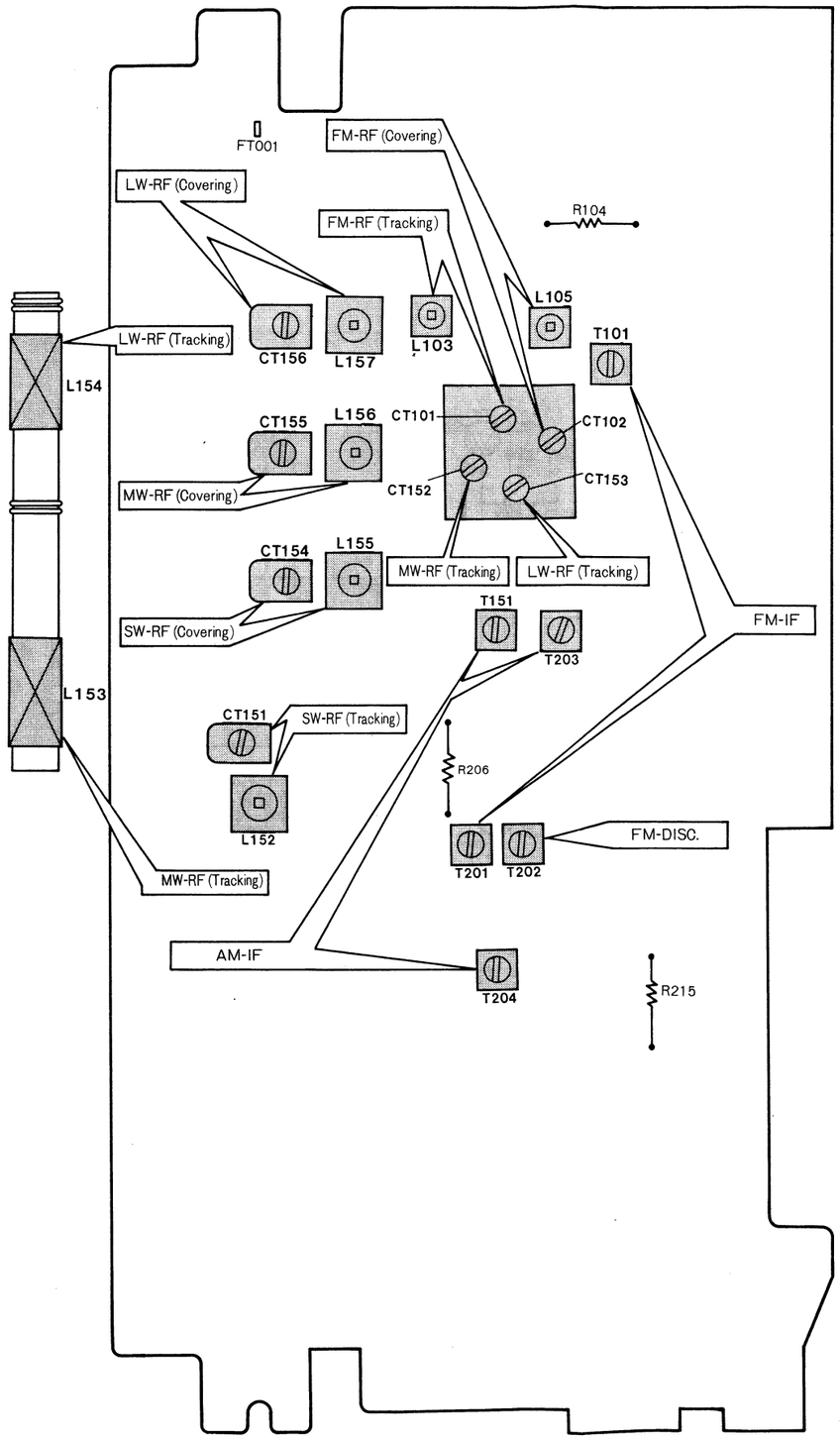


DIAL CORD STRINGING

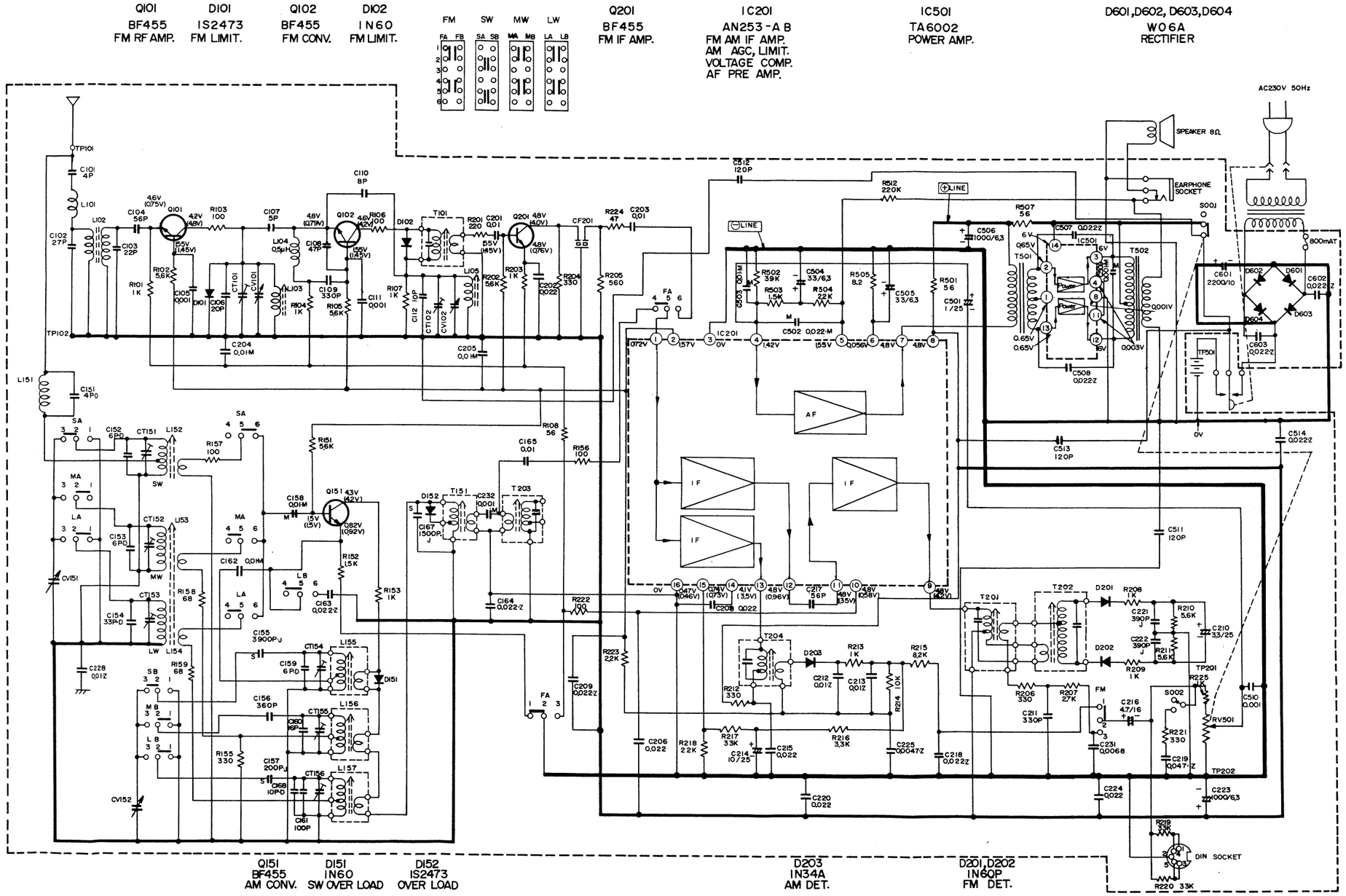


ADJUSTMENT

Sequence		Connection: Input	Connection: Output	Setting: Tuning	Setting: Signal	Adjust: Adjust	Adjust: Indication
		Sweep Generator / Signal Generator	Oscilloscope / V.T.V.M.				
		Set core (T202) : Fully counterclockwise.					
1	FM-IF			f max.	10.7MHz	T201 T101	10.7MHz
2	FM-DISC.					T202	Straight line  10.7MHz
3	(Covering) **FM-RF** (Tracking)			f min.	87MHz	L105	V max.
				f max.	109MHz	CT102	
				90MHz	90MHz	L103	
				106MHz	106MHz	CT101	
4	AM-IF			f max.	465kHz	T151 T203 T204	465kHz
5	(Covering) **SW-RF** (Tracking)			f min.	5.8MHz	L155	V max.
				f max.	18.5MHz	CT154	
				6.5MHz	6.5MHz	L152	
				16MHz	16MHz	CT151	
6	(Covering) **MW-RF** (Tracking).			f min.	515kHz	L156	
				f max.	1650kHz	CT155	
				600kHz	600kHz.	L153	
				1400kHz	1400kHz	CT152	
7	(Covering) **LW-RF** (Tracking)			f min.	145kHz	L157	
				f max.	360kHz	CT156	
				160kHz	160kHz	L154	
				330kHz	330kHz	CT153	



Q101 BF455 FM RF AMP.
D101 IS2473 FM LIMIT.
Q102 BF455 FM CONV.
D102 IN60 FM LIMIT.
Q201 BF455 FM IF AMP.
IC201 AN253-AB FM AM IF AMP. AM AGC, LIMIT. VOLTAGE COMP. AF PRE AMP.
IC501 TA6002 POWER AMP.
D601,D602, D603,D604 W06A RECTIFIER



Q151 BF455 AM CONV.
D151 IN60 SW OVER LOAD
D152 IS2473 OVER LOAD
D203 IN34A AM DET.
D201,D202 IN60P FM DET.

Note

1. Voltage measured at base of chassis with minimum volume control and no signal.
2. Nomenclature of Resistors and Capacitors.

R101 150-RS-1-K

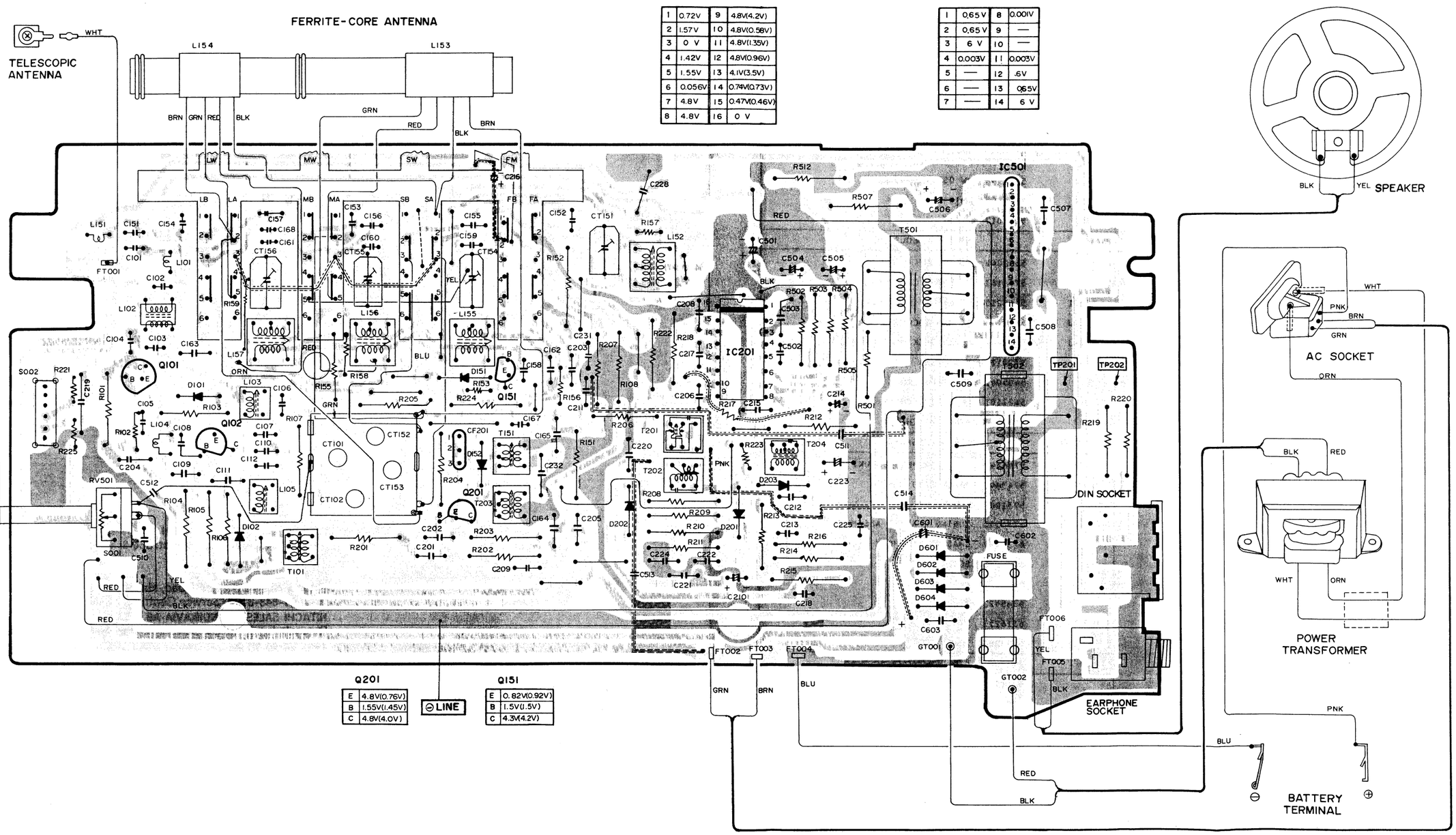
	Circuit No.
Value	No indicated Ω(Ohm) M : 1000kΩ
Tolerance	No indicated ±5% K : ±10% M : ±20%
Wattage	No indicated ¼W
Sort	No indicated Carbon film RC : Composition RW : Wire wound RS : Oxide metal film RN : Fixed metal film

C101 0.001·M

C102 0.1/16

	Circuit No.
Value	No indicated μF P : PF
Tolerance	No indicated ±10% J : ± 5% M : ±20% Z : +80%, −20% D : ±0.5pF C : ±0.25pF
Sort	Ceramic
	Electrolitic
	Mylar
	Polyester
	Styrol
Voltage	No indicated 50WV

3. Be sure to make your orders of resistors and capacitors with value, voltage, tolerance and sort.
4. When replacing capacitors marked with ※, use specified ones stated on parts list since required temperature characteristics.



IC201

1	0.72V	9	4.8V(4.2V)
2	1.57V	10	4.8V(0.58V)
3	0 V	11	4.8V(1.35V)
4	1.42V	12	4.8V(0.96V)
5	1.55V	13	4.1V(3.5V)
6	0.056V	14	0.74V(0.73V)
7	4.8V	15	0.47V(0.46V)
8	4.8V	16	0 V

IC501

1	0,65 V	8	0.001V
2	0,65 V	9	—
3	6 V	10	—
4	0.003V	11	0.003V
5	—	12	.6V
6	—	13	0,65V
7	—	14	6 V

Q101

E	4.6V(0.75V)
B	1.55V(1.45V)
C	4.2V(4.8V)

Q102

E	4.8V(0.79V)
B	1.55V (1.45V)
C	4.6V(4.2V)

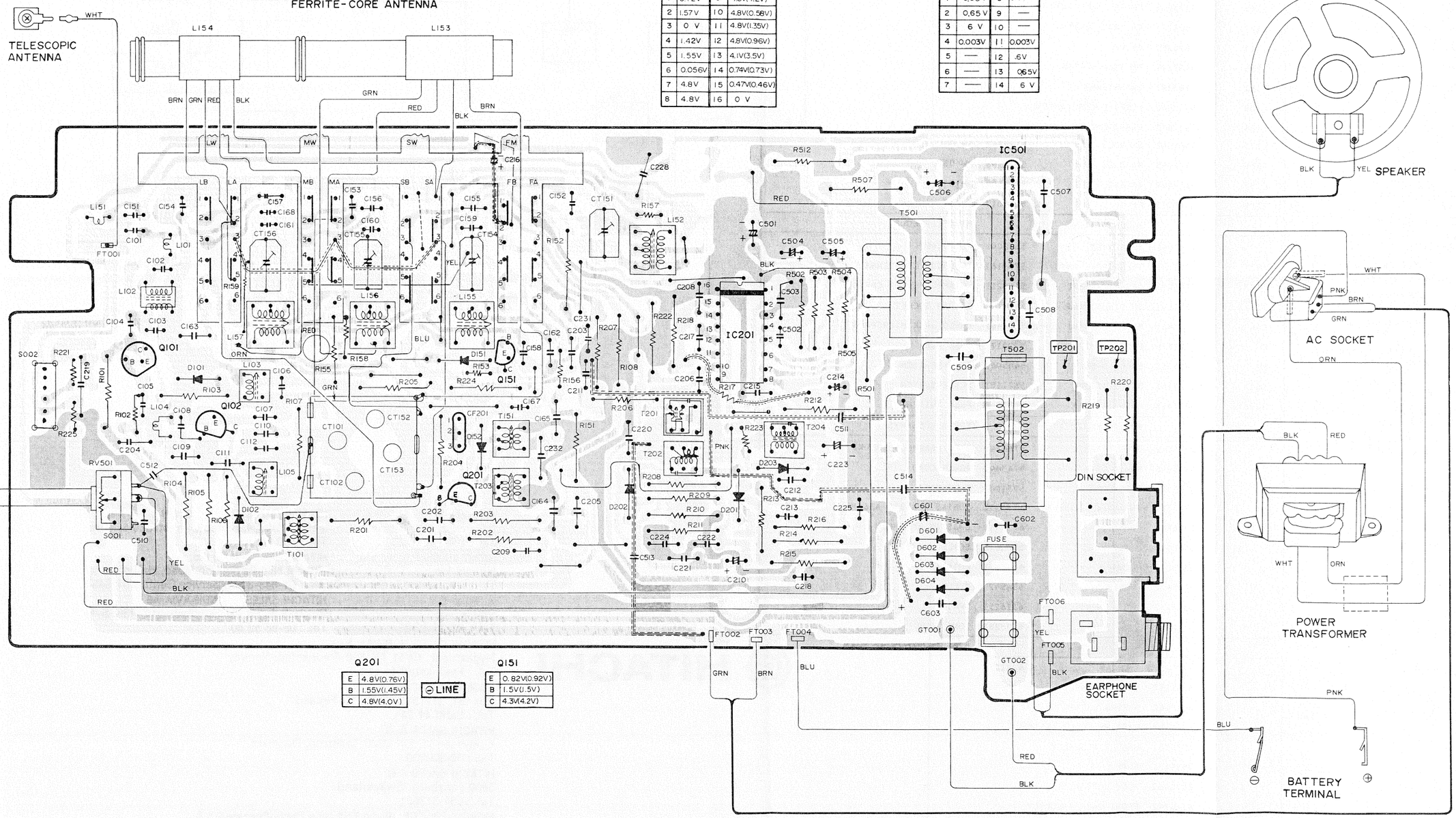
Q201

E	4.8V(0.76V)
B	1.55V(1.45V)
C	4.8V(4.0V)

⊖LINE

Q151

E	0.82V(0.92V)
B	1.5V(1.5V)
C	4.3V(4.2V)



IC201

1	0.72V	9	4.8V(4.2V)
2	1.57V	10	4.8V(0.58V)
3	0 V	11	4.8V(1.35V)
4	1.42V	12	4.8V(0.96V)
5	1.55V	13	4.1V(3.5V)
6	0.056V	14	0.74V(0.73V)
7	4.8V	15	0.47V(0.46V)
8	4.8V	16	0 V

IC501

1	0.65 V	8	0.001V
2	0.65 V	9	—
3	6 V	10	—
4	0.003V	11	0.003V
5	—	12	.6V
6	—	13	0.65V
7	—	14	6 V

Q101

E	4.6V(0.75V)
B	1.55V(1.45V)
C	4.2V(4.8V)

Q102

E	4.8V(0.79V)
B	1.55V (1.45V)
C	4.6V(4.2V)

Q201

E	4.8V(0.76V)
B	1.55V(1.45V)
C	4.8V(4.0V)

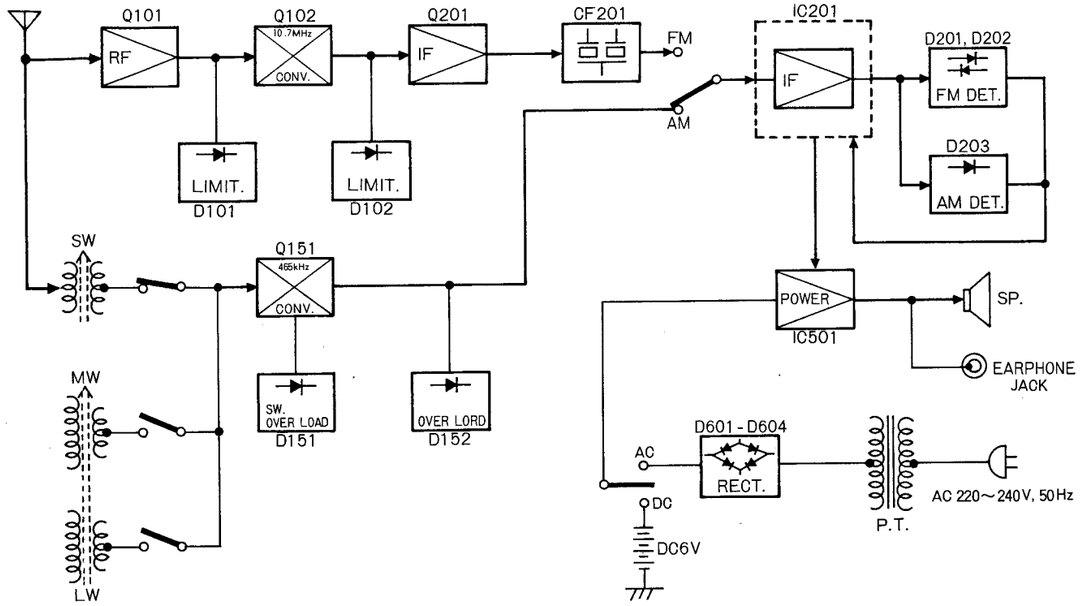
Q151

E	0.82V(0.92V)
B	1.5V(1.5V)
C	4.3V(4.2V)

REPLACEMENT PARTS

SYMBOL-NO	P-NO	DESCRIPTION
		CAPACITORS
CT101	5052011	VARIABLE
CT102	5052011	VARIABLE
CT151	0283113	VARIABLE
CT152	5052011	VARIABLE
CT153	5052011	VARIABLE
CT154	0283113	VARIABLE
CT155	0283113	VARIABLE
CT156	0283113	VARIABLE
CV101	5052011	VARIABLE
CV102	5052011	VARIABLE
CV151	5052011	VARIABLE
CV152	5052011	VARIABLE
C110	0246428	CERAMIC DISCAL
		RESISTORS
RV501	5003003	VARIABLE 10K OHM (A)
		SEMI-CONDUCTORS
D101	5330572	DIODE SILICON 1S2473HC 100MHZ 250MW 10NS
D102	0575005	DIODE GERMANIUM 1N60 80MHZ 50MW 70NS
D151	0575005	DIODE GERMANIUM 1N60 80MHZ 50MW 70NS
D152	5330572	DIODE SILICON 1S2473HC 100MHZ 250MW 10NS
D201	0575019	DIODE GERMANIUM 1N60P 80MHZ 50MW 70NS
D202	0575019	DIODE GERMANIUM 1N60P 80MHZ 50MW 70NS
D203	0575001	DIODE GERMANIUM 1N34A 10MHZ 50MW 140NS
D601	5330341	DIODE SILICON W0-6A 60HZ 1.7W
D602	5330341	DIODE SILICON W0-6A 60HZ 1.7W
D603	5330341	DIODE SILICON W0-6A 60HZ 1.7W
D604	5330341	DIODE SILICON W0-6A 60HZ 1.7W
IC201	5351065	IC AN253AB
IC501	5356431	IC TA6002
Q101	5321651	TRANSISTOR BF455C
Q102	5321651	TRANSISTOR BF455C
Q151	5321651	TRANSISTOR BF455C
Q201	5321651	TRANSISTOR BF455C
		TRANSFORMERS
PT	5211477	POWER
PT	5211478	POWER
T151	5130034	AM IF
T201	5148033	DISCRIMINATOR-IST
T202	5148034	FM IF
T203	5130031	AM IF 20K OHM : 3K OHM
T204	5130033	AM IF
T501	5240142	DRIVER
T502	5250784	OUT PUT
		COILS
L101	5123271	FM TRAP 0.5MH
L102	0318519	FM ANTENNA
L103	5126006	FM RF 0.5 MICRO H
L104	5123271	FM TRAP 0.5MH
L105	5126007	FM RF
L151	5123271	FM TRAP 0.5MH
L152	5123341	SW ANTENNA
L153	5112812	FERRITE-CORE ANTENNA
L154	5112812	FERRITE-CORE ANTENNA
L155	5123342	SW OSC.
L156	5120195	MW OSC.
L157	5120429	AM OSC.
T101	5140017	FM IF
		MISCELLANEOUS
	5652041	AC SOCKET
ANT	5751161	TELESCOPIC ANTENNA
CF201	5160213	CERAMIC FILTER CF-107
DIN-J	5651141	5P DIN SOCKET
EAP-J	5670461	MOULD JACK MICROPHONE
F	5720175	FUSE 0.8A
SP	5405061	SPEAKER-10CM
S002	5621181	SLIDE SWITCH
S003	5637045	PUSH SWITCH
		FOR ACCESSARYS
	5746341	CORD ASSEMBLY (HSUK)
	5743898	POWER CORD
	5731001	EARPHONE
	6736551	TUNING CHASSIS ASSEMBLY
	6736541	CHASSIS ASSEMBLY
	6478571	SCALE PLATE
	6398211	POINTER
	6345422	PULLEY
	6316231	SPRING M
	6298281	TONE KNOB
		MISCELLANEOUS
	6281281	KNOB ASSEMBLY
	6281233	KNOB ASSEMBLY
	6310162	SPRING WASHER
	6172001	BATTERY COVER ASSEMBLY
	6333361	HANDLE ASSEMBLY
	7539701	SHAFT
	6275482	PUSH BUTTON
	6136742	FRONT CASE ASSEMBLY
	6136515	REAR CASE ASSEMBLY
	6136516	REAR CASE ASSEMBLY (HSUK)

BLOCK DIAGRAM



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